

Section 312320 Dewatering Water Management

Part 1 General

1.01 Project Description

- A. Section includes handling, mixing/blending, treatment, and monitoring for the following:
1. Ponds ABC, Pond D, and Pond E subsurface/pore waters and waters that have contacted ash must meet the criteria in Tables 1 and 2 of this Section to be discharged to Outfall 005.
 2. Ponds ABC, Pond D, and Pond E surface waters must meet the criteria in Table 2 of this Section to be discharged to Outfall 005.
 3. Stormwater not in contact with ash, Potomac River water, metal cleaning waste (internal Outfall 501), and oil waste (internal Outfall 502) mixed/blended with Ponds ABC, Pond D, and/or Pond E subsurface/pore waters or waters that have contacted ash must meet the criteria in Tables 1 and 2 of this Section to be discharged to Outfall 005.
 4. Stormwater not in contact with ash, Potomac River water, metal cleaning waste (internal Outfall 501), and oil waste (internal Outfall 502) not mixed/blended with Ponds ABC, Pond D, and/or Pond E subsurface/pore waters or waters that have contacted ash must meet the criteria in Table 2 of this Section to be discharged to Outfall 005.
 5. Waters that do not meet the above criteria must be redirected to Pond D and not discharged to Outfall 005 until treated and able to meet the criteria in Tables 1 and 2 of this Section.
- B. Section does not include the following:
1. Surface waters that have not contacted ash may be discharged through the temporary sediment basins shown on the Construction Drawings in Pond E and in Pond ABC once the Prince William County Site Plan is approved, which is currently scheduled for March 2016.
 2. The Owner shall be responsible for treating Metal Cleaning Waste before discharging to internal Outfall 501.
 3. The Owner shall be responsible for treating Oil Waste before discharging to internal Outfall 502.
 4. Oil Waste that is diverted to Low Volume Waste Ponds (Outfall 004). This is addressed in the other specifications and drawings.
- C. Related Requirements:
1. Section 02125 "Erosion and Sediment Control" for controlling sediment during dewatering operations.
 2. Section 02150 "Construction Dewatering" for construction dewatering.
 3. Section 02200 "Earthwork" for excavating, backfilling, site grading, and controlling surface-water runoff and ponding.

1.02 Pre-installation Meetings

- A. Pre-installation Conference: Conduct conference at Project site.
 - 1. Verify availability of Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review sampling and testing requirements.

1.03 Action Submittals

- A. Shop Drawings: Prepared by or under the supervision of a qualified Professional Engineer.
 - 1. Include plans, elevations, sections, and details.
 - 2. Show arrangement, locations, and details of system, headers, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water and solids.
 - 3. Include flow-measuring devices for monitoring.
 - 4. Include written plan for dewatering water management operations. The plan shall include a procedure to ensure a violation of the discharge criteria does not occur if treatment problems arise.
 - 5. Conveyance, pump and forcemain plans.
 - 6. Handling, containment, storage, and disposal plans.
 - 7. Sampling and testing plan.
 - 8. Include watertight fittings for approval by Owner's Representative.
 - 9. Spill Prevention Plan.
 - 10. Performance testing plan for treatment system(s).

1.04 Informational Submittals

- A. Qualification data: For Installer and Professional Engineer.
- B. Field quality-control reports.

1.05 Quality Assurance

- A. Installer qualifications: An experienced installer that has specialized in selection of mixing/blending, treatment, and conveyance systems for dewatering work.

1.06 Field Conditions

- A. Project-Site Information: Characterization data of the dewatering water and surface water from the Pond E dewatering pilot test is available upon request. The dewatering pilot test information is scheduled to be available in May 2015. Water quality data from Internal Outfalls 501 and 502 and Outfall 005 are available upon request.

Part 2 Products

2.01 Performance Requirements

- A. Mixing/blending and treatment system(s): Design, furnish, install, test, operate, monitor, and maintain mixing/blending and treatment system(s) of sufficient scope, size, and capacity to control ammonia, metals, chlorides, pH, TSS, and oils and grease concentrations and dispose of solids, oils, and grease, as necessary.

1. Design mixing/blending and treatment system(s), including comprehensive engineering analysis by a qualified Professional Engineer to meet the discharge criteria in Tables 1 and 2:

Table 1
Dewatering Activity Discharge Criteria for Ammonia, Metals, and Chlorides to Discharge to Outfall 005

Parameter	Limit	Units
Ammonia	0.8	ug/L
Antimony	1,280	ug/L
Arsenic	300	ug/L
Cadmium	2	ug/L
Chloride	270	mg/L
Chromium	49	ug/L
Hexavalent Chromium	22	ug/L
Copper	14	ug/L
Lead	18	ug/L
Mercury	2	ug/L
Nickel	31	ug/L
Selenium	10	ug/L
Thallium	0.7	ug/L
Zinc	185	ug/L

Table 2
pH, TSS, and Oils & Grease Discharge Criteria for Outfall 005

Parameter	Minimum	Monthly Average	Maximum	Units
pH	6.0	n/a	9.0	S.U.
TSS	n/a	30	100	mg/L
Oils & Grease	n/a	15	20	mg/L

2. Mixing/blending and treatment system(s) shall have sufficient capacity to process 1,000-gallons per minute flows.
 3. Sample ports shall be included to take grab samples of mixed/blended effluent.
 4. Accomplish mixing/blending and treatment without damaging adjacent existing buildings, structures, and site improvements.
 5. Remove mixing/blending and treatment system(s) when no longer required.
- B. Conveying flows: Operate, monitor, and maintain conveyance facilities to direct flows, as necessary.
1. Conveyance system(s) shall have sufficient capacity to capture and direct flows.
 2. Joints, connections, and fittings shall be watertight. Flanges, Victaulic, and welded or fused connections are acceptable.
 3. Accomplish conveyances without damaging adjacent existing buildings, structures, and site improvements.

4. Remove conveyance systems when no longer required or as directed by Owner's Representative.
- C. Regulatory Requirements: Comply with governing EPA and VDEQ notification regulations before beginning mixing/blending, treatment, and conveyance operations. Comply with water and disposal regulations of authorities having jurisdiction.

Part 3 Execution

3.01 Preparation

- A. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by treatment, mixing/blending, and conveyance operations.
 1. Prevent surface water and subsurface/pore or ground water from flooding site or surrounding area.
 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Locate treatment, mixing/blending, and conveyance system(s) to ensure minimum interference with Owner's facilities.
 1. The treatment system shall be located within the Pond E Area.
 2. The mixing/blending system shall be located within the Pond E Area.
- C. Stabilize subgrades for the treatment, mixing/blending, and conveyance system(s), as necessary.
- D. Provide grading to facilitate dewatering and control of surface water in dewatering operations, which is specified in Section 02150 "Construction Dewatering".
- E. Protect and maintain erosion and sedimentation controls, which are specified in Section 02125 "Erosion and Sediment Control" during dewatering operations.

3.02 Installation

- A. Mixing/blending and Treatment System(s):
 1. Mobilize treatment system(s) complete with pump equipment, standby power and pumps, valves, appurtenances, containment and spill countermeasures, water and solids disposal, and surface-water controls.
 2. Install interconnecting piping and appurtenances.
 3. Install pump system(s) and forcemain(s) to convey waters to and from mixing/blending and treatment system(s).
 4. Install solids processing, storage, and disposal facilities, as applicable.
 5. Install oils and grease processing, storage, and disposal facilities, as applicable.
 6. Install pH adjustment handling, storage, and metering facilities, as applicable.
- B. Conveyance System(s):
 1. Mobilize conveyance system(s) complete with pump equipment, standby power and pumps, valves, appurtenances, water and solids disposal, and surface-water controls.
 2. Install interconnecting piping and appurtenances.
 3. Install pump system(s) and forcemain(s) to convey waters.

- C. Provide standby equipment on-site, installed and available for immediate operation, to maintain treatment, mixing/blending, and conveyance system(s) on continuous basis if any part of system(s) becomes inadequate or fails.

3.03 Performance Testing

- A. Perform performance test on representative waters for a period of one day prior to initial use of mixing/blending and treatment system(s). Sample influent and effluent quality for the parameters in Tables 1 and 2 of this Section. Effluent flows must be collected and stored and/or re-directed to Pond D and not discharged through a permitted Outfall. Use of mixing/blending and treatment system(s) is dependent on ability of performance test to demonstrate compliance in meeting parameters in Tables 1 and 2 of this Section.

3.04 Operation

- A. Operate treatment, mixing/blending, and conveyance system(s) continuously until all ponds are capped and all active dewatering systems are removed and passive dewatering systems stop flowing. For bid purposes the passive dewatering systems are assumed to operate over a period of 12 months after active dewatering systems are removed.
- B. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.
- C. Remove treatment, mixing/blending, and conveyance system(s), including pumps, forcemains, and associated appurtenances, from Project site on completion of dewatering activities or as directed by Owner's Representative.

3.05 Field Quality Control

- A. Sampling and Testing: Sample and analyze effluent on a weekly basis for the following:
 - 1. Parameters in Table 1 and Table 2 of this Section when discharging to Outfall 005.
- B. Provide continual observation to ensure that treatment, mixing/blending, and conveyance system(s) are operating. Make corrective actions as soon as practical. Comply with discharge criteria.
- C. Issue laboratory analysis results to Owner's Representative within one-day of receipt.

3.06 Protection

- A. Protect and maintain treatment, mixing/blending, and conveyance system(s), including pumps, forcemains, and associated appurtenances, during dewatering operations.
- B. Promptly repair damages to adjacent facilities caused by operations.

-End of Section-